Fundamentals of NLM Grants

National Library of Medicine Extramural Programs

Updated Nov 2003

Overview of slide set

- NLM grant programs overview
- Problem-oriented view and examples of funded grants
- Grant review & approval process
- Tips for successful applications

Informatics Funding at NIH

- Biomedical Informatics is NLM's research domain
  - Clinical informatics & bioinformatics/biotechnology
  - Basic & applied research
  - NLM grants & training $60 million in FY2003
- Other NIH institutes support bioinformatics or informatics-related work, e.g., NIBIB, NCRR, NIGMS, NHGRI

NLM Grant Programs

- **Research grants** – investigator initiated research
- **Resource grants** – infrastructure & applied informatics
- **Training support** – individual fellowships, informatics research training at academic centers
- **Career development support** – career support and educational loan repayment
- **Grants for small businesses** – commercialize good ideas

Research Grants

- Focus on research & development in medical informatics, biotechnology information, health sciences library and information sciences
  - Traditional investigator-initiated research grants (R01)
  - Experimental/developmental research grants (R21)
  - Small grants for pilot study/proof of concept (R03)
  - IAIMS Testing & Evaluation grants (R24)
  - Conference Grants (R13)

Career Support Awards

- Focus on building the supply of researcher investigators in informatics
  - Early Career Development Support (K-22)
  - Loan Repayment Program (L30)

Resource Grants

- Focus on improving access to and management of health-related information
  - Internet Access to Digital Libraries Grants (G07)
  - Information System Grants (G08)
  - Integrated Advanced Information Management Systems Grants for planning & operations (G08)
  - Biotechnology Resource Grants (P41)
  - Publication Grants (G13)

Training & Fellowships

- 18 University-based medical Informatics research training programs
- Individual Fellowships
  - Individual Biomedical Informatics Fellowships (F37)
  - Senior Individual Biomedical Informatics Fellowships (F38)
  - Fellowships for IAIMS (F38)
  - Fellowships for Informationist Training (F37 & F38)

Grants for Small Businesses

- SBIR phase 1 and 2 grants for companies that want to bring a product to market
- Priorities are the same as for research grants in biomedical informatics
- Fast-track possible – combine phase 1 and 2 in a single application, but requires prior approval

Problem: Access to Information

- Solution: grants for last-mile, wireless, gateway searches, single log-in, portals, new audiences
- Examples of recent awards – resource grants
  - 4-States InfoSystem: Health Information Network
  - VA Nationwide Palliative Care Network
  - Distribution of a Primary Care Office Information System
  - Hawaii Access to Computerized Health (HATCH)
  - Animals as Sentinels of Human Environmental Hazards

Problem: Information "Silos"

- Solution: grants for Integrated Advanced Information Management Systems (IAIMS)
- 5 IAIMS grants: planning, operations, pilot studies, testing & evaluation, internship
- Fundamental Areas to address in IAIMS
  - Delivery of context-appropriate information
  - Standards-based information management
  - Integrated digital libraries
  - Cross organizational & functional boundaries
- Recent awards: UMDNJ, U of Cincinnati

Problem: Intelligent Information Retrieval

- Solution: grants for informatics/information sciences; tool development; pilot studies
- Examples of recent awards – research & resource grants
  - Shape-Based Retrieval in Medical Image Databases
  - Intelligent Critiquing of Clinical-Guideline Application
  - Infobuttons to improve clinicians' access to information
  - PrimeAnswers: Knowledge at the point of primary care
  - Content-based Neuro Image Classification

Problem: Too Few Informaticians

- Solution: NLM-Supported Training Programs
  - Columbia - Harvard – Indiana – Hopkins - Minnesota – Missouri - Oregon – Pittsburgh - Rice – Stanford - S. Carolina - U. Washington – Wisconsin - UC-Irvine – UCLA – Utah – Vanderbilt –Yale
- Individual Research Fellowships (F37, F38)
- Loan repayment program for clinical researchers in informatics
- Early Career support awards (K-22)

Problem: Bring ideas to market

- Solution: grants for innovative R&D with potential for commercialization and public benefit. NLM informatics research interests apply
- Examples of recent awards - SBIR/STTR program
  - Fractal modeling of biomedical time series
  - Dynamic language modeling for transcription systems, using natural language processing
  - High-throughput screening of functional data for proteins derived from genomic research

NLM Grant Deadlines

	Cycle 1	Cycle 2	Cycle 3
Research, Career, Resource	1-February	1-June	1-October
Conference	15-April	15-August	15-December
Revised Applications	1-March	1-July	1-November
SBIR/STTR	1-April	1-August	1-December
Fellowships	5-April	5-August	5-December

Peer Review for NLM Grants

- Center for Scientific Review assigns all applications to a study section and a funding Institute
- NLM has a standing study section
  - Biomedical Library & Informatics Review Committee (BLIRC)
- Some NLM grant applications are reviewed by a Special Emphasis Panel or another study section
- SBIR grants reviewed by CSR study section

Review Steps for Grants

REVIEW STEP		TIMETABLE
Received at CSR	→	Feb 1 (Jun 1, Oct 1)
1st Review by BLIRC	→	June (Nov, Mar) – Priority scores @ 1 week – Summary statement @ 5 weeks
2nd Review by BOR	→	Sept (Feb, May)
Final Decision, NLM	→	@ Nov (Apr, Aug) – Notice of grant award mailed

Grant Review Outcomes

- **PRIORITY SCORES**
- 100-150 (most likely to be funded)
- 150-200 (sometimes funded)
- 200-250 (rarely funded)
- 250- 500 (never funded except some SBIR)

- SUCCESS RATES
- Research grants - @ 20-25%
- Resource grants - @ 25-30%
- Revised applications - @ 40-50%

NIH Review Criteria for Research Grants

Criterion	Questions in Reviewer's mind
Significance	• Does it address an important problem?
Approach	• Is the conceptual framework sound? • Is related work discussed? • Are potential problems recognized?
Innovation	• Are the aims, concepts, methods and/or outcomes novel?
Investigator	• Does the PI/team have appropriate training and experience?
Environment	• How sound is the scientific environment?

NIH Review Criteria for Resource Grants

Criterion	Questions in Reviewer's mind
Significance	• Is there an expressed need? Benefits for wider audience?
Approach	• Are the resources sufficient to the task? • Are the timeline & milestones realistic? • Are the methods sound? • Are potential problems recognized?
Innovation	• Not required
Investigator	• Does the PI/team have appropriate training and experience?
Environment	• Is the system sustainable?

Components of Good Proposals

- Responsive to the program statement or NLM's research interests
- Clearly-stated goals and methodology
- A work plan that fits the stated goals
- A timeline and milestones
- References to the published literature, especially for R01
- Familiarity with other, similar work

Components of Good Proposals

- Evidence of advance planning, ‘interesting’ pilot data or user survey data
- Key personnel with relevant expertise and adequate FTE dedicated to the work
- Sincere letters of support from stakeholders
- Letters of support from named collaborators & consultants
- Evidence that problems & contingencies have been considered

Other Helpful Hints

- **DO**
- Observe page and font size limits
- Name the grant program (e.g., NLM IADL grant)
- Request BLIRC if you want it reviewed by NLM
- Contact program officer in advance

- **DON'T**
- Put information in appendix that is needed to judge merit
- Request more than $500K/yr without approval

Points of contact at NLM/EP

- Dr. Milton Corn – BISTI, bioinformatics, career development, SBIR, training programs
- Dr. Valerie Florance – research & resource grants; fellowships; IAIMS; disaster management grants; publication grants; conference grants
- Dr. Hua-Chuan Sim - loan repayment program

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For more information

- 301-594-4882 for Florance
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- 301-496-4253 for Sim
- http://www.nlm.nih.gov/ep
  program announcements, links to application forms
- http://www.nlm.nih.gov/ep/faq.html answers many specific questions
- http://www.nlm.nih.gov/ep/funded.html for list of funded projects